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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,705	02/25/2002	Gerhard Rueckert	4299/PCT	3988

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EXAMINER

HORTON, YVONNE MICHELE

ART UNIT	PAPER NUMBER
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3635

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/069,705	Applicant(s) RUECKERT, GERHARD	
	Examiner Yvonne M. Horton	Art Unit 3635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-25, 28-30, 33, 37, 39 and 41-48 is/are rejected.
- 7) ☒ Claim(s) 26, 27, 31, 32, 34-36, 38 and 40 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The amendment filed 3/03/04 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the newly proposed paragraph to page 4 of the specification and the claims that require that the tension-only connecting element be "non-rigid" or "non-rigid and limp" is not supported by the original specification.

Applicant is required to cancel the new matter in the reply to this Office Action.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: that the non-rigid limp connecting element is two parallel wires or cables that transmit tension only forces. Only Figure 4 shows connecting elements that may be paired off as two parallel elements. As a matter of fact, the specification details the connecting elements that are shown in Figure 4 are "aluminum" which is supported in the specification as being able to transmit "both tension and compression". However, the specification also details that steel is the tension-only connecting element. Clarification is requested

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 21-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 21 and 42, it is not clear how the steel or wire cable connecting elements, page 6, line 9, are "non-rigid" elements. Although one may have slight more or less than the other, steel, as does aluminum, usually incorporates some amount of rigidity.

Claim 42 includes a non-rigid limp connecting element transmitting tension only between the third joint and at least two joints among the first and second joints. However, in claims 46 and 48, an attempt is being made to now identify that the non-rigid limp connecting element is two parallel wires or cables that transmit tension only forces. This is not clear because only Figure 4 details certain sets of connecting members that may be parallel. Unfortunately, the examiner cannot isolate where the "parallel" requirement is supported in the specification. Further, the specification details the connecting elements that are shown in Figure 4 are "aluminum" which is supported in the specification as being able to transmit "both tension and compression". However, the specification also details that steel is the tension-only connecting element. Hence, it is not clear if the applicant is attempting to claim a separate species of connecting members or what? Until further clarification the claim is being interpreted as there

"generally" being tension-only wires that are parallel to one another. Clarification is required.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 21 and 41 are rejected under 35 U.S.C. 102(b) as being anticipate by US Patent #5,014,484 to TANIZAWA et al. TANIZAWA et al. discloses the use of a variable support structure with a modular construction consisting of at least one collapsible support structure module, which is bounded by joints (colored blue) of a first joint set, which are corner joints of the support structure module and lie in a first surface (colored orange), and by joints (colored red) of a second joint set, which are corner joints of the support structure module and lie in a second surface (colored yellow), and with at least one joint (colored green) of a third joint set, which lies outside of the first surface, whereby at least a portion of the joints of the first and second joint set is fixable in its position relative to one another, especially connectable with one another, by a guide mechanism (29), characterized in that, one joint (colored green) of the third joint set is connected with at least two joints (colored blue) and (colored red) of the first and second joint set by a connecting element similar to (3a-d). TANIZAWA et al. discloses connectors similar to elements (27,28,30) in figure 21 for connecting joint sets that transmit tension only, column 10, lines 13, 15, and 20. regarding claim 41, the tension-only non-rigid connecting elements similar to elements (27,28,30) are equivalent to his connecting elements (13), which are wires, column 9, line 48.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 21-25,28-29,33 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent #4,970,841 to ZEIGLER. ZEIGLER discloses the use of a variable support structure with a modular construction consisting of at least one collapsible support structure module, which is bounded by joints (22,23,24,25) of a first joint set, which are corner joints of the support structure module and lie in a first surface (parallel to the first panel (110)), and by joints (26,27,28,29) of a second joint set, which are corner joints of the support structure module and lie in a second surface (parallel with the second panel (P)), and with at least one joint (38,39,40,41) and (50) of a third joint set, which lies outside of the first surface, whereby at least a portion of the joints of the first and second joint set is fixable in its position relative to one another, especially connectable with one another, by a guide mechanism (T) and (18,19,20,21), characterized in that, one joint (50) of the third joint set is connected with at least two joints (22,23,24,25) and (26,27,28,29) of the first and second joint set by a connecting element (30,31,32,33) and (34,35,36). ZEIGLER discloses the basic claimed structure except he does not specify exactly which joint sets transmits tension only. He does however, in column 3, lines 13-16, detail that his structure may be compression, tension, or combined tension and compression. Hence, although ZEIGLER is not descriptive as to which joints are tension, from the aforementioned section from his

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disclosure, it would have been obvious from one having ordinary skill in the art at the time the invention was made that at least one embodiment of ZEIGLER includes all joint connections that transmits essentially only tension forces, columns 3, lines 13-16.

Further, the selection of which joints that are tensioned would have been an obvious matter of design choice that would depend upon the part of the structure requiring the least or greatest amount of control while being expanded or contracted. For instance, the framework should only have enough rigidity to prevent it from being distorted or twisted, but enough rigidity that would allow it to stand and be contracted for storage.

Regarding claim 22 a joint (38,39,40,41) of the third joint set is connected with at least one joint (26,27,28,29) of the second joint set by a connecting element (10,11); (12,13); (14,15); and (16,17) that transmits tension and compression forces, column 3, lines 13-16. In reference to claim 23, the at least two joints (22,23,24,25) and (26,27,28,29) of the first and second joint set and the at least one joint (26,27,28,29) of the second joint set are connected with a common joint (50) of the third joint set. Regarding claim 24, the structure of ZEIGLER also includes at least two joints (22,23,24,25) and (26,27,28,29) of the first and second joint set are connected with a first joint (38,39,40,41) of the third joint set, and the at least one joint (26,27,28,29) of the second joint set is connected with a second joint (50) of the third joint set, and in that the first joint (38,39,40,41) of the third joint set is connected with the second joint (50) of the third joint by a connecting element (34,35,36) that transmits compression and tension forces. In reference to claim 25, the first (110) and the second (P) surfaces are planes. Regarding claim 28, the guide mechanism comprises guide means (T) and

(18,19,20,21), and in that at least one joint (22,23,24,25) of the first joint set of a corner of the module) especially arranged on the outer circumference of the structure is connected by the guide (T) means with a joint (102) of the second joint set of a neighboring corner of the module (91) especially arranged on the outer circumference of the structure, and a joint of the second joint set of the corner is connected by the guide means with a joint of the first joint set of the neighboring corner. In reference to claim 29, the guide means comprise connecting elements (10,11); (12,13); (14,15); and (16,17) that transmit tension and compression forces and that are crossed-over and pivotally connected with one another. Regarding claim 33, the expansion of the module is adjustable by an operating arrangement including the connecting elements 10,11); (12,13); (14,15) and (16,17) and joints (38, 39, 40, 41) and (50). In reference to claim 37, the first joint set (22,23,24,25) of the first joints of the second joint set (26,27,28,29) and the joints (38,39,40,41) and (50) of the third joint set are connectable by a membrane (110,P) in such a manner so that thereby an at least partially closed outer surface of the first or second surface is formed.

Claims 30 and 39 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent #4,970,841 to ZEIGLER. ZEIGLER discloses the basic claimed structure except for explicitly detailing the diameter of the connecting elements and except for explicitly detailing the material used to form the connecting elements.

Although ZEIGLER is silent in these regards, the selection of diameter size and type of material would have been an obvious matter of design choice that would depend upon the amount of rigidity required for the structure. Clearly larger size diameters carry

heavier loads and are more rigid, as aluminum is slightly more rigid than plastic, for instance.

Claims 42-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent #5,014,484 to TANIZAWA et al. TANIZAWA et al. discloses the use of a variable support structure with a modular construction consisting of at least one collapsible support structure module, which is bounded by first joints (colored light blue), which are corner joints of the support structure module and lie in a first surface (colored orange); and by second joints (colored red), which are corner joints of the support structure module and lie in a second surface (colored yellow); a third joint (colored green), which is distinct from the first (colored light blue) and second (colored red) joints and which is displaced from the first surface (colored orange) facing toward the second surface (colored yellow), whereby at least a portion of the joints of the first and second joint set is fixable in its position relative to one another, especially connectable with one another, by a guide mechanism (29); at least one non-rigid connecting element similar to elements (13,27,28,30) that transmit tension-only forces, column 10, lines 13, 15, and 20, and is connected between the third joint (colored green) and at least two selected joints (colored pink). TANIZAWA et al. discloses the basic claimed deployable structure except for explicitly detailing that his non-rigid connecting element is limp. Although TANIZAWA et al. is silent in this regard, he does disclose that his non-rigid tension only connecting elements (13,27,28,30) are Flexible and capable of being stretched. Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made since the connecting elements of TANIZAWA et al. are

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flexible and stretchable, they would obviously be "limp" to some degree. Regarding claim 43, the at least two selected joints (colored pink) include at least one of said first joints (colored light blue) and at least one of said second joints (colored red). In reference to claim 44, the least two selected joints include three (colored purple) of said first joints (colored light blue) and one (colored purple) of said second joints (colored red), and wherein said at least one non-rigid limp connecting element includes four said non-rigid limp connecting elements (colored purple) respectively connecting said third joint with said three (colored purple) first joints (colored blue) and said one (colored purple) second joint (colored red). Regarding claim 45, each of the non-rigid limp connecting elements (13,27,28,30) includes at least one wire, column 9, line 48. that is adapted and able to transmit only tension forces, column 10, lines 13,15 and 20. In reference to claims 46 and 48, each of the non-rigid limp connecting elements (13,27,28,30) includes two wires (colored royal blue) that are arranged and extend parallel to one another. Regarding claim 47, the deployable structure of TANIZAWA et al. further includes a fourth joint (colored brown) that is distinct from said first (colored light blue), second (colored red) and third (colored green) joints; and at least one connecting rod (colored gray) that connects said fourth joint (colored brown) respectively with at least one of said second joints (colored red). TANIZAWA et al. does not detail that the connecting rods (colored gray) as being able to transmit both tension forces and compression forces. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made that in order to this

arrangement to operate effectively, the members similar to what is colored gray must be able to at least transmit compression forces.

Allowable Subject Matter

Claims 26,27,31,32,34-36,38 and 40 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 3/03/04 have been fully considered but they are not persuasive.

Regarding the applicant's argument that the tension-only connecting elements are "non-rigid", the specification clearly details that the connecting elements are steel or aluminum wires or cables. Clearly, steel and aluminum both have a certain degree of rigidity. Also, the size and type of wire or cable determines the amount of rigidity for each type or wire or cable.

In response to the applicant's argument that if one tries to apply compression force along a steel cable, the cable will buckle and crumble, this is only partially true in that the amount of force applied and size of the wire or cable again, determines whether the wire or cable will buckle or crumple. A small force applied to a larger sized diameter wire or cable may have no effect thereon; whereas the same force applied to a smaller size diameter wire or cable might, in fact buckle or crumple the wire or cable.

Regarding the applicant's argument that steel only transmits tension, hence, ZEIGLER does not detail the material of his connectors. He only discloses in column 3,

lines 13-16 that his connectors may be compression, tension, or both. Thus, the connecting members of ZEIGLER are not only compression members. And the struts do not merely transmit both.

Regarding the applicant's argument that a strut is a member designed to transmit both, this may be true in general or in certain circumstances; however, as taught by ZEIGLER, column 3, lines 13-16, his connecting arrangement can be tension, compression or both.

In reference to the applicant's argument that the examiner recognizes the struts of ZEIGLER as being able to transmit both tension and compression, she does. However, her recognition also includes the fact that the struts of ZEIGLER may be both or one or the other. Unfortunately, ZEIGLER is not explicit as to which joint of the set he requires or desires to take on tension, compression or both. Clearly, the design and intended use of the apparatus would dictate which members would be compression, tension or both.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., there being a load-bearing difference in the features of the group of struts) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

Regarding the applicant's argument that the forces of ZEIGLER are transmitted as compression forces, ZEIGLER does teach this; however, in doing so he employs the

use of a tube, nut and bolt. But, in column 9, lines 19-22, he discloses that the tube, nut and bolt assembly may be omitted; thereby deleting such a rigidifying means.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvonne M. Horton whose telephone number is (703) 308-1909. The examiner can normally be reached on 6:30 am - 3:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl D. Friedman can be reached on (703) 308-0839. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YMH
May 25 2004


Carl D. Friedman
Supervisory Patent Examiner
Group 3600

Fig.21

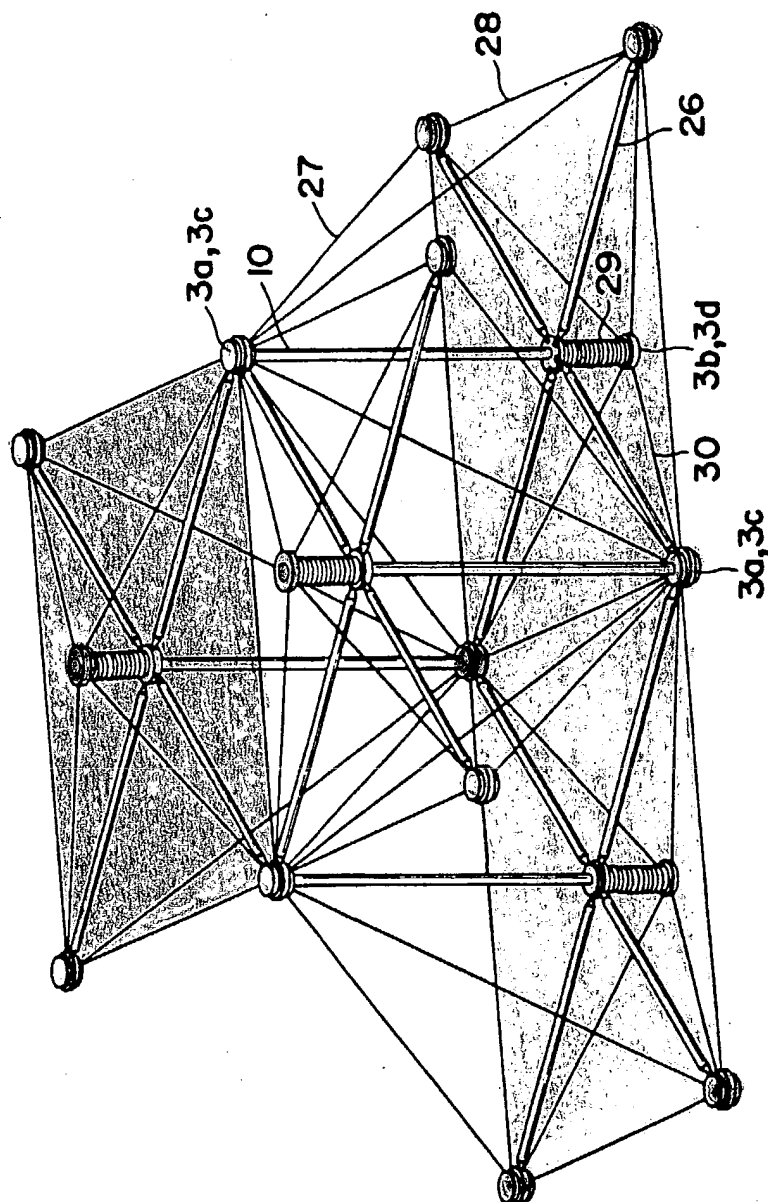


Fig.21

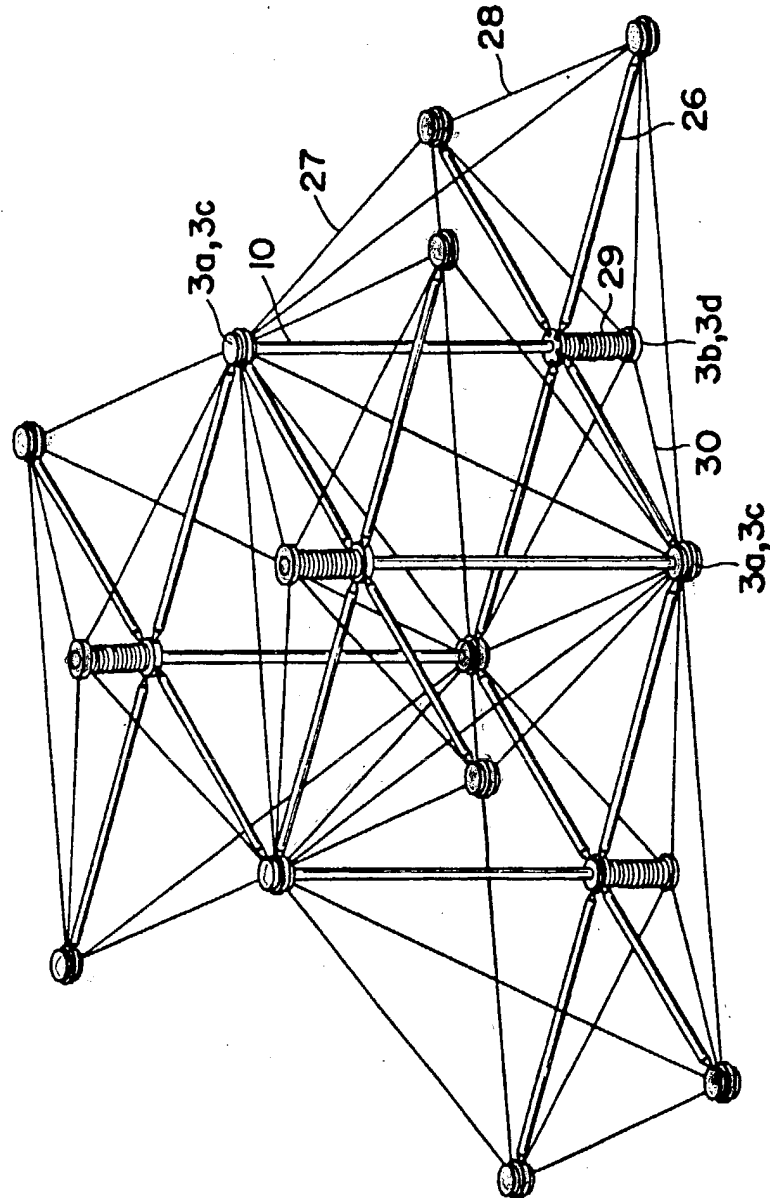


Fig.21

